What is claimed is:

1. A method of depositing a silicon based film on a wafer characterized in that at least one silicon containing precursor and at least one chemical precursor are introduced into a hot-wall thermal chemical vapor deposition chamber housing a wafer, and wherein the precursors react to form a silicon based film on the wafer at a deposition rate of approximately 1000 Å/min. or greater.

2. The method of claim 1 wherein said method is carried out at a wafer temperature of up to about 550 °C.

3. The method of claim 1 wherein said at least one silicon containing precursor is comprised of any one of or combination of SiH_4, $SiCl_2H_2$, Si_2H_6, Si_2Cl_6, $SiCl_3H$, or $SiCl_4$.

4. The method of claim 1 wherein said at least one silicon containing precursor is Si_2H_6 and said at least one chemical precursor is NH_3.

5. The method of claim 1 wherein said at least one chemical precursor is a nitrogen source selected from the group of NH_3, alkyl amine, hydrazine, alkylhydrazine, alkyl amide, alkyl imide, and atomic nitrogen.

6. The method of claim 1 wherein said method is carried out at a pressure in the range of about 10 to 500 Torr.

7. The method of claim 1 wherein said method is carried out at a pressure in the range of about 100 to 130 Torr.

8. The method of claim 1 further comprising introducing an inert gas into the hot wall thermal chamber.

9. The method of claim 1 further comprising introducing an oxidant into the hot wall thermal chamber, and wherein the oxidant is comprised of any one of or combination of ozone, O_2, NO, N_2O, H_2O, H_2O_2 and atomic oxygen.

10. The method of claim 1 wherein the silicon containing precursor is conveyed at a flow rate in the range of 10 sccm to 500 sccm.

11. A method of depositing a silicon based film on a wafer in a hot-wall thermal chemical vapor deposition chamber, comprising the steps of:

heating the wafer to a temperature in the range of 400 to 550°C;

reacting at least one silicon containing precursor and ate least one nitrogen containing precursor to deposit a silicon based film on the wafer.

12. The method of claim 11 wherein said at least one silicon containing precursor is comprised of any one of, or combination of SiH_4, $SiCl_2H_2$, Si_2H_6, Si_2Cl_6, $SiCl_3H$, or $SiCl_4$.

13. The method of claim 11 wherein said at least one silicon containing precursor is Si_2H_6 and said at least one nitrogen precursor is NH_3..

14. The method of claim 11 wherein said at least one nitrogen precursor is comprised of any one of or combination of NH_3, alkyl amine, hydrazine, alkylhydrazine, alkyl amide, alkyl imide or atomic nitrogen.

15. The method of claim 11 wherein said method is carried out at a pressure in the range of about 10 to 500 Torr.

16. The method of claim 11 further comprising introducing an oxidant into the hot wall thermal chamber, and wherein the oxidant is comprised of any one of or combination of ozone, O_2, NO, N_2O, H_2O, H_2O_2 and atomic oxygen.

17. A method of depositing a silicon based film on a wafer in a hot-wall thermal chemical vapor deposition chamber, comprising the steps of:

heating the wafer to a temperature of up to approximately 550 °C;

establishing the pressure in the chamber in the range of approximately 10 to 500 Torr;

conveying at least one silicon containing precursor comprised of any one of, or combination of SiH_4, $SiCl_2H_2$, Si_2H_6, Si_2Cl_6, $SiCl_3H$, or $SiCl_4$, and at least one nitrogen containing precursor comprised of any one of or combination of NH_3, alkyl amine, hydrazine, alkylhydrazine, alkyl amide, alkyl imide or atomic nitrogen; and

reacting said silicon and nitrogen containing precursors to deposit a silicon based film on the wafer.